

REMARKS

This Amendment amends claims 45-50, 52-54 and 56-66 and adds new claims 67-72. Claims 45-72 are pending. Claims 45, 49, 52, 56, 60 and 64 are independent.

This Amendment adds new claims 67-72. Support for new claims 67-72 is found in the specification at, for example, page 7, lines 7-8 and page 12, lines 23-25.

The Office Action objects to claim 45 for an informality. This Amendment amends claim 45 in accordance with the Examiner's suggestions.

The Office Action rejects claims 47, 54 and 62 under 35 U.S.C. §112 second paragraph. This Amendment amends claims 47, 54 and 62 to clarify the subject matter which Applicants regard as the invention. Support for the Amendments to claims 47, 54 and 62 may be found in the specification at, for example, page 15, lines 2-6. Applicants respectfully submit that the amendments overcome the rejection.

The Office Action rejects claims 45, 47-48, 60 and 62-63 under 35 U.S.C. §102(b) over Fonasha et al. Applicants respectfully traverse this rejection.

Fonasha et al. does not teach or suggest the features of independent claims 45 and 60 including: 1) contacting a material for promoting crystallization to at least a part of a semiconductor film formed over a substrate (claim 45); and 2) contacting at least one metal element to at least part of a semiconductor film formed over a substrate (claim 60). Applicants respectfully request withdrawal of the rejection.

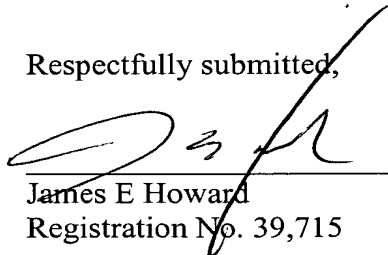
The Office Action rejects claims 46, 49-59, 61 and 64-66 under 35 U.S.C. §102(e) over Miyasaka. Applicants respectfully traverse this rejection.

Miyasaka does not teach or suggest the features of independent claims 45, 49, 52, 56, 60 and 64 including: 1) contacting a material for promoting crystallization to at least a part of a semiconductor film formed over substrate (claims 45, 49, 52 and 56); and 2) contacting at least one metal element to at least a part of a semiconductor film formed over a substrate (claims 60 and 64). Rather, the hydrogen and oxygen plasmas disclosed in Miyasaka are different from the features recited in the independent claims. Applicants respectfully request withdrawal of the rejection.

In view of the foregoing Amendments and Remarks, Applicants respectfully submit that the application is in condition for allowance. Prompt reconsideration and allowance are earnestly solicited.

Should the Examiner believe that anything further is desirable in order to place the application into condition for allowance, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,



James E Howard
Registration No. 39,715

JEH:dkf

Attachment:

VERSION WITH MARKINGS TO SHOW CHANGES MADE

NIXON PEABODY LLP
8180 Greensboro Drive, Suite 800
McLean, Virginia 22102
(703) 790-9110

VERSION WITH MARKINGS TO SHOW CHANGES MADE

45. (Amended) A method for manufacturing a semiconductor device comprising steps of:

[forming an initial semiconductor film formed over a substrate] contacting a material for promoting crystallization to at least a part of a semiconductor film formed over a substrate;

[subjecting said semiconductor film to oxygen plasma, and]

subjecting said semiconductor film to oxygen plasma, thereby a gate insulating film formed on said semiconductor film; and

crystallizing said [initial] semiconductor film to obtain a crystalline semiconductor film.

46. (Amended) A method according to claim 45, wherein said crystallizing is performed by crystallizing said [initial] semiconductor film by irradiating with an infrared ray or a laser light.

47. (Amended) A method according to claim 45, wherein said [initial] semiconductor film is crystallized [without melting] through one of a solid state and an intermediate state between a solid state and a liquid state.

48. (Amended) A method according to claim 45, wherein [an oxide film of said semiconductor film is formed thereon by said oxygen plasma] said gate oxide film is continuously formed without exposing the air after forming said semiconductor film.

49. (Amended) A method for manufacturing a semiconductor device comprising steps of:

[forming an initial semiconductor film formed over a substrate] contacting a material for promoting crystallization to at least a part of a semiconductor film formed over a substrate;

subjecting said semiconductor film to [oxygen] plasma comprising oxygen and helium; and

irradiating said semiconductor film with an infrared ray or a laser light.

50. (Amended) A method according to claim 49, wherein said [initial] semiconductor film is crystallized [without melting] through a solid state or intermediate state between a solid state and a liquid state.

52. (Twice Amended) A method for manufacturing a semiconductor device comprising steps of:

contacting a material for promoting crystallization to at least a part of [an initial] a semiconductor film formed over a substrate;

subjecting said semiconductor film to oxygen plasma; and

crystallizing said [initial] semiconductor film using said material, to obtain a crystalline semiconductor film.

53. (Amended) A method according to claim 52, wherein said crystallizing is performed by crystallizing said [initial] semiconductor film by irradiating with an infrared ray or a laser light.

54. (Amended) A method according to claim 52, wherein said [initial] semiconductor film is crystallized [without melting] through one of a solid state and an intermediate state between a solid state and a liquid state.

56. (Amended) A method for manufacturing a semiconductor device comprising steps of:

contacting a material for promoting crystallization to at least a part of [an initial] a semiconductor film formed over a substrate;

subjecting said semiconductor film to oxygen plasma;

[crystallizing said initial semiconductor film using said material, to obtain a crystalline semiconductor film] irradiating said semiconductor film with an infrared ray or a laser light; and

patterning said crystalline semiconductor film.

57. (Amended) A method according to claim 56, [wherein said crystallizing is performed by irradiating with an infrared ray or a laser light] further comprising a step of forming a second gate insulating film on the patterned semiconductor film.

58. (Amended) A method according to claim 56, wherein said [initial] semiconductor film is crystallized [without melting] through a solid state or intermediate state between a solid state and a liquid state.

59. (Amended) A method according to claim 56, wherein an oxide film of said semiconductor film is formed thereon by said oxygen plasma.

60. (Amended) A method for manufacturing a semiconductor device comprising steps of:

[forming an initial semiconductor film formed over a substrate] contacting at least one metal element to at least a part of a semiconductor film formed over a substrate;

subjecting said semiconductor film to [oxygen] plasma;

crystallizing said [initial] semiconductor film to obtain a crystalline semiconductor film; and

patterning said crystalline semiconductor film.

61. (Amended) A method according to claim 60, wherein said crystallizing is performed by crystallizing said [initial] semiconductor film by irradiating with an infrared ray or a laser light.

62. (Amended) A method according to claim 60, wherein said [initial] semiconductor film is crystallized [without melting] through one of a solid state and an intermediate state between a solid state and a liquid state.

63. (Amended) A method according to claim 60, wherein [an oxide] a gate insulating film of said semiconductor film is formed thereon by said [oxygen] plasma.

64. (Amended) A method for manufacturing a semiconductor device comprising steps of:

contacting [a material for promoting crystallization] at least one metal element to at least a part of [an initial] a semiconductor film formed over a substrate;
subjecting said semiconductor film to [oxygen] plasma; and
irradiating said semiconductor film with an infrared ray or a laser light.

65. (Amended) A method according to claim 64, wherein said [initial] semiconductor film is crystallized [without melting] through a solid state or intermediate state between a solid state and a liquid state.

66. (Amended) A method according to claim 64, wherein [an oxide] a first gate insulating film of said semiconductor film is formed thereon by said [oxygen] plasma.